EVALUATION REPORT FOR PERMIT TO CONSTRUCT

Applicant's Name: DART CONTAINER CORP OF CALIFORNIA Facility ID: 3721

Mailing Address: 150 SOUTH MAPLE STREET
CORONA, CA 92880-1704

Equipment Location: SAME

EQUIPMENT DESCRIPTION

Appl. No. 512521 – New Post-Consumer Polystyrene Foam Recycling System

Equipment	ID No.	Connected to	RECLAIM Source Type/ Monitoring Unit	Emission and Requirements	Conditions
Process 14: POST-CONSUMER POLYSTYRENE FOAM RECYCLING (NEW)					
CONVEYOR, BELT, POST-CONSUMER POLYSTYRENE FOAM PRODUCTS A/N: 512521	D289				
CLEANER, POST-CONSUMER POLYSTYRENE FOAM PRODUCTS, COLD WATER PRE-WASH, WITH A WASH WATER RE-CIRCULATION PUMP A/N: 512521	D290				
CONVEYOR, BELT, POST-CONSUMER POLYSTYRENE FOAM PRODUCTS A/N: 512521	D291				
SHREDDER, POST-CONSUMER POLYSTYRENE FOAM PRODUCTS A/N: 512521	D292	D180 D181 D182 D254 C306			D182.2, D182.3
CONVEYOR, SCREW, SHREDDED POLYSTYRENE FOAM PRODUCTS, A/N: 512521	D293			**PM:** (9) **[RULE 405, 2-7-1986]**	D323.2
CLEANER, SHREDDED POLYSTYRENE FOAM PRODUCTS, 2 WASHING CHAMBERS AND 1 RINSE CHAMBER A/N: 512521	D294				

HEATER, NATURAL GAS, LOCHINVAR, MODEL CHN0991, WATER HEATER, 0.95 MMBTU/HR A/N: 512521	D295		NOX: PROCESS UNIT**	**CO:** 400 PPMV NATURAL GAS (5A) **[RULE 1146.2, 5-5-2006]**; **CO:** 2000 PPMV NATURAL GAS (5) **[RULE 407, 4-2-1982]**; **NOX**: 20 PPMV NATURAL GAS (4) **RULE 1146.2, 5-5-2006; RULE 2005, 5-6-2005]**; **NOX**: 38.46 LBS/MMSCF NATURAL GAS (1) **[RULE 2012, 5-6-2005]**; **PM:** (9) **[RULE 404, 2-7-1986]**; **PM:** 0.1 GRAINS/SCF (5) **[RULE 409, 8-7-1981]**	
PRESS, DE-WATERING, ROLL TYPE A/N: 512521	D296				
CONVEYOR, SCREW, SHREDDED POLYSTYRENE FOAM PRODUCTS, A/N: 512521	D297				
DRYER, ROTARY, STEAM COILED A/N: 512521	D298	D180 D181 D182 D254 C306			D182.3
CONVEYOR, SCREW, SHREDDED POLYSTYRENE FOAM PRODUCTS A/N: 512521	D299			**PM:** (9) **[RULE 405, 2-7-1986]**	D323.1
EXTRUDER, NEPCO, MODEL NE-45, POLYSTYRENE FOAM, WIDTH: 5FT 5IN HEIGHT: 7 FT 1 IN; LENGTH: 9 FT 2 IN, WITH A/N: 512521 CRUSHER, 11 KW	D300			**PM:** (9) **[RULE 405, 2-7-1986]**	C1.10, D182.3, D323.1

Appl. No. 514484 – Modification to the existing APC systems

Equipment	ID No.	Connected to	RECLAIM Source Type/ Monitoring Unit	Emission and Requirements	Conditions
Process 3: EXTERNAL COMBUSTION *AND AIR POLLUTION CONTROL*					

BOILER, DIESEL FUEL, NATURAL GAS, CLEAVER BROOKS, MODEL CB200-600, WITH LOW NOX BURNER, 23.104 MMBTU/HR, WITH A/N: 316735 BURNER, WITH LOW NOX BURNER, 23.104 MMBTU/HR	D180	D5 D6 D7 D8 D9 D10 D11 D12 D13 D14 D15 D16 D17 D18 D19 D20 D21 D22 D23 D24 D25 D26 D27 D28 D29 D30 D31 ~~D~~*C*70 ~~D~~*C*71 D111 D112 D113 D114 D115 D116 D117 D118 D119 D120 D121 D122 D123 D124 D125 D126 D127 D128 D129 D130 D131 D132 D133 D134 D135 D136 ***D292 D298 C302 C303 C304 C305 C306***	NOX: LARGE SOURCE**	**CO**: 400 PPMV NATURAL GAS (5) [**RULE 1146, 11-17-2000;** *RULE 1146, 9-5-2008*]; **CO**: 2000 PPMV (5A) [**RULE 407, 4-2-1982**]; **NOX**: 30 PPMV NATURAL GAS (3) [**RULE 2012, 5-6-2005**]; **NOX**: 36 PPMV DIESEL (3) [**RULE 2012, 5-6-2005**]; **PM**: (9) [**RULE 404, 2-7-1986**]; **PM**: 0.1 GRAINS/SCF (5) [**RULE 409, 8-7-1981**]; **SOX**: 500 PPMV (5) [**RULE 407, 4-2-1982**]; **VOC**: (9) [**RULE 1175, 5-13-1994;** *RULE 1175, 9-7-2007*]	B75.1, D12.2, D29.2, D328.1, D371.1, E71.1, E193.1
BOILER, DIESEL FUEL, NATURAL GAS, CLEAVER BROOKS, MODEL CB200-600, WITH LOW NOX BURNER, 23.104 MMBTU/HR WITH A/N: ~~316734~~ ***514484*** BURNER, WITH LOW NOX BURNER, 23.104 MMBTU/HR	D181	D5 D6 D7 D8 D9 D10 D11 D12 D13 D14 D15 D16 D17 D18 D19 D20 D21 D22 D23 D24 D25 D26 D27 D28 D29 D30 D31 ~~D~~*C*70 ~~D~~*C*71 D111 D112 D113 D114 D115 D116 D117 D118 D119 D120 D121 D122 D123 D124 D125 D126 D127 D128 D129 D130 D131 D132 D133 D134 D135 D136 ***D292 D298 C302 C303 C304 C305 C306***	NOX: LARGE SOURCE**	**CO**: 400 PPMV NATURAL GAS (5) [**RULE 1146, 11-17-2000;** *RULE 1146, 9-5-2008*]; **CO**: 2000 PPMV (5A) [**RULE 407, 4-2-1982**]; **NOX**: 30 PPMV NATURAL GAS (3) [**RULE 2012, 5-6-2005**]; **NOX**: 36 PPMV DIESEL (3) [**RULE 2012, 5-6-2005**]; **PM**: (9) [**RULE 404, 2-7-1986**]; **PM**: 0.1 GRAINS/SCF (5) [**RULE 409, 8-7-1981**]; **SOX**: 500 PPMV (5) [**RULE 407, 4-2-1982**]; **VOC**: (9) [**RULE 1175, 5-13-1994;** *RULE 1175, 9-7-2007*]	B75.1, D12.2, D29.2, D328.1, D371.1, E71.1, E193.1
BOILER, NATURAL GAS, CLEAVER BROOKS, MODEL CB200-600, WITH LOW NOX BURNER, 23.104 MMBTU/HR WITH A/N: 362217 BURNER, WITH LOW NOX BURNER, 23.104 MMBTU/HR	D182	D5 D6 D7 D8 D9 D10 D11 D12 D13 D14 D15 D16 D17 D18 D19 D20 D21 D22 D23 D24 D25 D26 D27 D28 D29 D30 D31 ~~D~~*C*70 ~~D~~*C*71 D111 D112 D113 D114 D115 D116 D117 D118 D119 D120 D121 D122 D123 D124 D125 D126 D127 D128 D129 D130 D131 D132 D133 D134 D135 D136 ***D292 D298 C302 C303 C304 C305 C306***	NOX: LARGE SOURCE**	**CO**: 400 PPMV NATURAL GAS (5) [**RULE 1146, 11-17-2000;** *RULE 1146, 9-5-2008*]; **CO**: 2000 PPMV (5A) [**RULE 407, 4-2-1982**]; **NOX**: 30 PPMV NATURAL GAS (3) [**RULE 2012, 5-6-2005**]; **PM**: (9) [**RULE 404, 2-7-1986**]; **PM**: 0.1 GRAINS/SCF (5) [**RULE 409, 8-7-1981**]; **SOX**: 500 PPMV (5) [**RULE 407, 4-2-1982**]; **VOC**: (9) [**RULE 1175, 5-13-1994;** *RULE 1175, 9-7-2007*]	D12.2, D29.2, D328.1, D371.1, E71.1, E193.1

BOILER, NO. 4, NATURAL GAS CLEAVER BROOKS, MODEL CB-700HP, FIRE TUBE TYPE, LOW NOX BURNER, 29 MMBTU/HR WITH A/N: 389113 BURNER, RADIAN/URS RAPID MIX, LOW NOX BURNER, 29 MMBTU/HR	D254	D5 D6 D7 D8 D9 D10 D11 D12 D13 D14 D15 D16 D17 D18 D19 D20 D21 D22 D23 D24 D25 D26 D27 D28 D29 D30 D31 ~~D~~*C*70 ~~D~~*C*71 D111 D112 D113 D114 D115 D116 D117 D118 D119 D120 D121 D122 D123 D124 D125 D126 D127 D128 D129 D130 D131 D132 D133 D134 D135 D136 ***D292 D298 C302 C303 C304 C305 C306***	NOX: LARGE SOURCE**	**CO:** 2000 PPMV NATURAL GAS (5A) **[RULE 407, 4-2-1982]**; **CO:** 400 PPMV NATURAL GAS (5) **[RULE 1146, 11-17-2000;** RULE 1146, 9-5-2008**]**; **CO:** 50 PPMV NATURAL GAS (4) [**RULE 1303(a)(1), 12-6-2002**]; NOX: 9 PPMV NATURAL GAS (3) [**RULE 2012, 5-6-2005**]; NOX: 9 PPMV NATURAL GAS (4) [**RULE 2005, 5-6-2005**]; **PM:** 0.1 GRAINS/SCF (5**) [RULE 409, 8-7-1981]**; **PM:** (9**) [RULE 404, 2-7-1986]**; **VOC:** (9) **[RULE1175, 5-13-1994**; RULE 1175, 9-7-2007]; SOX: 500 PPMV NATURAL GAS (5) [RULE 407, 4-2-1982]	D12.2, D29.2, D328.1, D371.1, E71.1, E193.1
AGING ROOM, "A", ***PERMANENT TOTAL ENCLOSURE,*** WIDTH: 24 FT; HEIGHT: 40 FT ; LENGTH: 60 FT A/N: 514484	C70	D180 D181 D182 D254 ***C303***		VOC: (9) [RULE 1175, 5-13-1994; RULE 1175, 9-7-2007]	~~C6.1,~~ D12.1, ***D182.1, E193.3***
AGING ROOM, "B", ***PERMANENT TOTAL ENCLOSURE,*** WIDTH: 24 FT; HEIGHT: 40 FT ; LENGTH: 60 FT A/N: 514484	C71	D180 D181 D182 D254 ***C303***		VOC: (9) [RULE 1175, 5-13-1994; RULE 1175, 9-7-2007]	~~C6.1,~~ D12.1, ***D182.1, E193.3***
ENCLOSURE, PRE-EXPANDER ROOM, PERMANENT TOTAL ENCLOSURE, WIDTH: 30 FT; HEIGHT: 24 FT ; LENGTH: 120 FT A/N: 514484	***C302***	***D180 D181 D182 D254 C303 C305***		***VOC: (9) [RULE 1175, 5-13-1994; RULE 1175, 9-7-2007]***	***D12.1, D182.1, E193.3***
BLOWER, MAIN BLOWER, VENTING 2 AGING ROOMS AND 1 PRE-EXPANDER ROOM TO BOILERS, 20 HP A/N: 514484	***C303***	***C70 C71 D180 D181 D182 D254 C302***		***VOC: (9) [RULE 1175, 5-13-1994; RULE 1175, 9-7-2007]***	
BLOWER, BOOSTER BLOWER, VENTING PRE-EXPANDERS TO BOILERS, 7.5 HP A/N: 514484	***C304***	***D5 D6 D7 D8 D9 D10 D112 D113 D114 D115 D116 D180 D181 D182 D254***		***VOC: (9) [RULE 1175, 5-13-1994; RULE 1175, 9-7-2007]***	
BLOWER, BOOSTER BLOWER, VENTING PRE-EXPANDER ROOM TO AGING ROOMS, 5 HP A/N: 514484	***C305***	***D180 D181 D182 D254 C302***		***VOC: (9) [RULE 1175, 5-13-1994; RULE 1175, 9-7-2007]***	
BLOWER, CIRCULATING AGING ROOM AIR THROUGH DRYER AND VENTING SHREDDER TO AGING ROOMS, 10 HP A/N: 514484	***C306***	***D180 D181 D182 D254 D292 D298***			***C8.1, D182.2***

In addition, the following devices are changed administratively:

Equipment	ID No.	Connected to	RECLAIM Source Type/ Monitoring Unit	Emission and Requirements	Conditions
Process 1: FOAM CUP MANUFACTURING					
System 1: POLYSTYRENE BEAD EXPANSION - LINE 1					
AGING ROOM, "A", ***PERMANENT TOTAL ENCLOSURE,*** WIDTH: 24 FT; HEIGHT: 40 FT ; LENGTH: 60 FT A/N: ~~316738~~ *514484*	~~D~~C70	D180 D181 D182 D254 *C303*		VOC: (9) [RULE 1175, 5-13-1994; RULE 1175, 9-7-2007]	~~C6.1,~~ D12.1, *D182.1, E193.3*
AGING ROOM, "B", ***PERMANENT TOTAL ENCLOSURE,*** WIDTH: 24 FT; HEIGHT: 40 FT ; LENGTH: 60 FT A/N: ~~316738~~ *514484*	~~D~~C71	D180 D181 D182 D254 *C303*		VOC: (9) [RULE 1175, 5-13-1994; RULE 1175, 9-7-2007]	~~C6.1,~~ D12.1, *D182.1, E193.3*

Appl. No. 512522 – De Minimis Significant Title V Facility Permit Revision

"Revision of Title V Facility Permit per Rule 301(l)(7).

PERMIT CONDITIONS

F16.1 The operator shall keep records, in a manner approved by the District, for the following parameter(s) or item(s):

In order to ensure compliance with condition F2-1, the VOC emissions from the facility shall be calculated using the following procedures:

For DI foam process, pounds per day VOC emissions = (polystyrene foam sheet production rate, in pound/day)X(0.01258).

For EPS process, pounds per day VOC emissions = (EPS beads feed rate in pound/day)X(0.00804).

For post-consumer polystyrene foam recycling process, pounds per day VOC emissions = (polystyrene ingot production rate in pound/day)X(0.00141).

For VOC containing materials including alcohol, pounds per day VOC emissions = (gallons per day of VOC containing materials)X(VOC content in pounds per gallon of material)

Based on the source test results, the emission factors for the DI foam & EPS processes may be adjusted and the facility permit holder will be notified. Upon notification from the District, the adjusted emission factors shall be used for the emission calculations.

[**RULE 1303(b)(1)-Offset, 5-10-1996**; RULE 1303(b)(1)-Offset, 12-6-2002]

C1.10 The operator shall limit the material processed to no more than 8,400 lb(s) in any one day.

For the purpose of this condition, material processed shall be defined as reclaimed polystyrene ingot.

The operator shall maintain records in a manner approved by the District, to demonstrate compliance with this condition.

[**RULE 1303(b)(2)-Offset, 5-10-1996**; RULE 1303(b)(2)-Offset, 12-6-2002]

[Devices subject to this condition: D300]

~~C6.1 The operator shall use this equipment in such a manner that the pressure being monitored, as indicated below, does not exceed 14.7 Psia.~~

~~To comply with this condition, the operator shall monitor the pressure as specified in condition number 12-1.~~

~~[RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(a)(1)-BACT, 12-6-2002]~~

~~[Devices subject to this condition: D70, D71]~~

C8.1 The operator shall use this equipment in such a manner that the flow rate being monitored, as indicated below, does not less than 381.7 cfm.

To comply with this condition, the operator shall install and maintain a(n) flow meter to accurately indicate the flow rate from the shredder.

[**RULE 1303(a)(1)-BACT, 5-10-1996**; RULE 1303(a)(1)-BACT, 12-6-2002]

[Devices subject to this condition: C306]

D12.1 The operator shall install and maintain a(n) pressure gauge to accurately indicate the pressure in the ~~room~~ ***Permanent Total Enclosure***.

[**RULE 1303(a)(1)-BACT, 5-10-1996**; RULE 1303(a)(1)-BACT, 12-6-2002]

[Devices subject to this condition: ~~D~~***C***70, ~~D~~***C***71, ***C302***]

D182.1 The operator shall test this equipment in accordance with the following specifications:

The test shall be conducted to demonstrate compliance with condition no E193.3.

The test(s) shall be conducted using USEPA Method 204 – Criteria for and Verification of a Permanent or Temporary Total Enclosure.

The test shall be conducted at least once every five years.

The test shall be conducted after a source test protocol is submitted by the applicant and approved by the District.

The District shall be notified of the date and time of the test at least 10 days prior to the test.

Notwithstanding the requirements of Section E conditions, the source test results shall be submitted to the District no later than 60 days after the source test was conducted.

[**RULE 1175, 5-13-1994**; Rule 1175, 9-7-2007; **RULE 1303(a)(1)-BACT, 5-10-1996**; RULE 1303(a)(1)-BACT, 12-6-2002; **RULE 3004(a)(4)-Periodic Monitoring**]

[Devices subject to this condition: C70, C71, C302]

D182.2 The operator shall test this equipment in accordance with the following specifications:

The test shall be conducted to demonstrate compliance with USEPA Method 204 – Criteria for and Verification of a Permanent or Temporary Total Enclosure.

The test shall be conducted no later than 180 days after the initial start-up of this equipment unless otherwise approved in writing by the District.

The District shall be notified of the date and time of the test at least 10 days prior to the test.

Notwithstanding the requirements of Section E conditions, the source test results shall be submitted to the District no later than 60 days after the source test was conducted.

[**RULE 1303(a)(1)-BACT, 5-10-1996**; RULE 1303(a)(1)-BACT, 12-6-2002]

[Devices subject to this condition: D292, C306]

D182.3 The operator shall test this equipment in accordance with the following specifications:

The test shall be conducted to verify the VOC emission factors for the NEPCO extruder (Device No. D300) and the existing NEPCO extruder.

The test shall be conducted no later than 180 days after the initial start-up of this equipment unless otherwise approved in writing by the District.

The test shall be conducted after a source test protocol is submitted by the applicant and approved by the District.

The District shall be notified of the date and time of the test at least 10 days prior to the test.

The test shall be conducted to determine the VOC contents of the process materials (calculated as w/w % pentane, on a dry basis) at 1) the shredder feed inlet, 2) shredder product outlet, 3) dryer product outlet, and 4) NEPCO extruder (Device No. D300) product outlet.

The test shall be conducted to determine the VOC contents of the process materials (calculated as w/w % pentane, on a dry basis) at 1) feed inlet and 2) product outlet of the existing NEPCO extruder, which is used for recycle clean polystyrene foam products.

Notwithstanding the requirements of Section E conditions, the source test results shall be submitted to the District no later than 60 days after the source test was conducted.

[*RULE 1303(a)(1)-BACT, 5-10-1996;* *RULE 1303(a)(1)-BACT, 12-6-2002;* RULE 1303(b)(2)-Offset, 5-10-1996; RULE 1303(b)(2)-Offset, 12-6-2002**]**

[Devices subject to this condition: D292, D298, D300]

D323.1 The operator shall conduct an inspection for visible emissions from all stacks and other emission points of this equipment whenever there is a public complaint of visible emissions, whenever visible emissions are observed, and on a semi-annual basis, at least, unless the equipment did not operate during the entire semi-annual period. The routine semi-annual inspection shall be conducted while the equipment is in operation and during daylight hours.

If any visible emissions (not including condensed water vapor) are detected that last more than three minutes in any one hour, the operator shall verify and certify within 24 hours that the equipment causing the emission and any associated air pollution control equipment are operating normally according to their design and standard procedures and under the same conditions under which compliance was achieved in the past, and either:

1). Take corrective action(s) that eliminates the visible emissions within 24 hours and report the visible emissions as a potential deviation in accordance with the reporting requirements in Section K of this permit; or

2). Have a CARB-certified smoke reader determine compliance with the opacity standard, using EPA Method 9 or the procedures in the CARB manual “Visible Emission Evaluation”, within three business days and report any deviations to AQMD.

The operator shall keep the records in accordance with the recordkeeping requirements in Section K of this permit and the following records:

1). Stack or emission point identification;

2). Description of any corrective actions taken to abate visible emissions;

3). Date and time visible emission was abated; and

4). All visible emission observation records by operator or a certified smoke reader.

[RULE 3004(a)(4)-Periodic Monitoring, 12-12-2007]

[Devices subject to this condition: D299, D300]

D323.2 The operator shall conduct an inspection for visible emissions from all stacks and other emission points of this equipment whenever there is a public complaint of visible emissions, whenever visible emissions are observed, and on an annual basis, at least, unless the equipment did not operate during the entire annual period. The routine annual inspection shall be conducted while the equipment is in operation and during daylight hours.

If any visible emissions (not including condensed water vapor) are detected that last more than three minutes in any one hour, the operator shall verify and certify within 24 hours that the equipment causing the emission and any associated air pollution control equipment are operating normally according to their design and standard procedures and under the same conditions under which compliance was achieved in the past, and either:

1). Take corrective action(s) that eliminates the visible emissions within 24 hours and report the visible emissions as a potential deviation in accordance with the reporting requirements in Section K of this permit; or

2). Have a CARB-certified smoke reader determine compliance with the opacity standard, using EPA Method 9 or the procedures in the CARB manual “Visible Emission Evaluation”, within three business days and report any deviations to AQMD.

The operator shall keep the records in accordance with the recordkeeping requirements in Section K of this permit and the following records:

1). Stack or emission point identification;

2). Description of any corrective actions taken to abate visible emissions;

3). Date and time visible emission was abated; and

4). All visible emission observation records by operator or a certified smoke reader.

[RULE 3004(a)(4)-Periodic Monitoring, 12-12-2007]

[Devices subject to this condition: D293]

E193.3 The operator shall operate and maintain this equipment according to the following requirements:

The permanent total enclosure shall be maintained at a negative pressure of at least 0.007 inches water column whenever the equipment it serves is in operation.

The permanent total enclosure shall be maintained and operated in compliance with criteria specified in EPA Method 204 – Criteria for and Verification of a Permanent or Temporary Total Enclosure whenever the equipment it serves is in operation.

To comply with this condition, the operator shall monitor the pressure as specified in condition number 12-1.

[**RULE 1175, 5-13-1994**; Rule 1175, 9-7-2007; **RULE 1303(a)(1)-BACT, 5-10-1996**; RULE 1303(a)(1)-BACT, 12-6-2002; **RULE 3004(a)(4)-Periodic Monitoring**]

[Devices subject to this condition: C70, C71, C302]

BACKGROUND/HISTORY

Dart Container Corporation in Corona (Dart) manufactures food serving polystyrene products, which indicated as follows:

1. Expanded Poly-Styrene (EPS) foam cups
2. Extruded Poly-Styrene (XPS) foam, or called Direct Injection (DI) foam products such as plates, bowls and trays.
3. Transparent Oriented Poly-Styrene (OPS) plastic containers such as cups, plates, lids etc.
4. Opaque High Impact Poly-Styrene (HIPS) plastic lids

Dart facility type:

RECLAIM		Title V
SOx	NOx	
No	Yes	Yes

On July 13 and September 14, 2010, Dart submitted the following permit applications to install a post-consumer polystyrene foam recycling facility, as indicated below:

Appl. No.	Type	Previous P/O	Equipment	Fee Sch.	Expedited?
512521	P/C	N/A	Polystyrene foam Recycling System	Sch. C	Yes
512172	Plan	N/A	N/A	RECLAIM/Title V Rev.	N/A
514484	P/C	F3771	Boiler/Afterburner	Sch. D	Yes

Appl. No. 512521 is submitted as an expedited class-I application to install a post-consumer polystyrene foam recycling system. The recycling system will be used to reclaim polystyrene materials from the used, dirty polystyrene foam plates, bowls, containers, cups, etc.

Appl. No. 514484 is submitted as an expedited class-I modification application for the existing APC system to control additional sources of the VOC emissions. The APC system will be modified to control the additional VOC emissions from the new post-consumer polystyrene foam recycling system.

The APC system consists of the four boiler/afterburners designated as D180, D181, D182 and D254, each with a separate District operating permit. The four boiler/afterburners share a common VOC emission capturing system, which consists of three Permanent Total Enclosures (PTEs) venting the EPS pre-expansion and aging processes. The VOC emission capturing system will be modified to also vent VOC emissions from the new post-consumer polystyrene foam recycling system. Since the VOC capturing system is shared, it is determined only one application for the smallest of the four boiler/afterburners is sufficient to cover the proposed modification. Boiler/afterburners D180, D181 and D182 are identical and rated at 23.104 MMBtu/hr. Boiler/afterburner D254 is a larger unit which is rated at 29 MMBtu/hr. Therefore, this writer chooses this application for the modification of boiler/afterburner D181 (PO F3771), which is one of the three smaller units.

Appl. No. 512522 is submitted as a plan for the "de minimis significant permit revision" of the Reclaim/Title-V permit as specified in Rule 301.

PROCESS DESCRIPTION

Appl. No. 511295

Post-consumer Polystyrene Foam Recycling System

The post-consumer polystyrene foam product recycling system is a continuous flow system to reclaim polystyrene materials from the used, dirty polystyrene foam plates, bowls, containers, cups, etc. The recycling system consists of the following equipment:

1. Plate feeder
2. Pre-washer
3. Shredder feed conveyor

4. Shredder,
5. Surge hopper screw conveyor
6. 3-stage washer with rinse
7. Dryer press roll feed auger
8. 4-stage thermal dryer
9. Dryer discharge screw auger
10. Polystyrene foam recycling machine, with a feed conveyor belt, a grinder, and an electric heated extruder.

The process flow block diagram for the recycling system is shown as below:

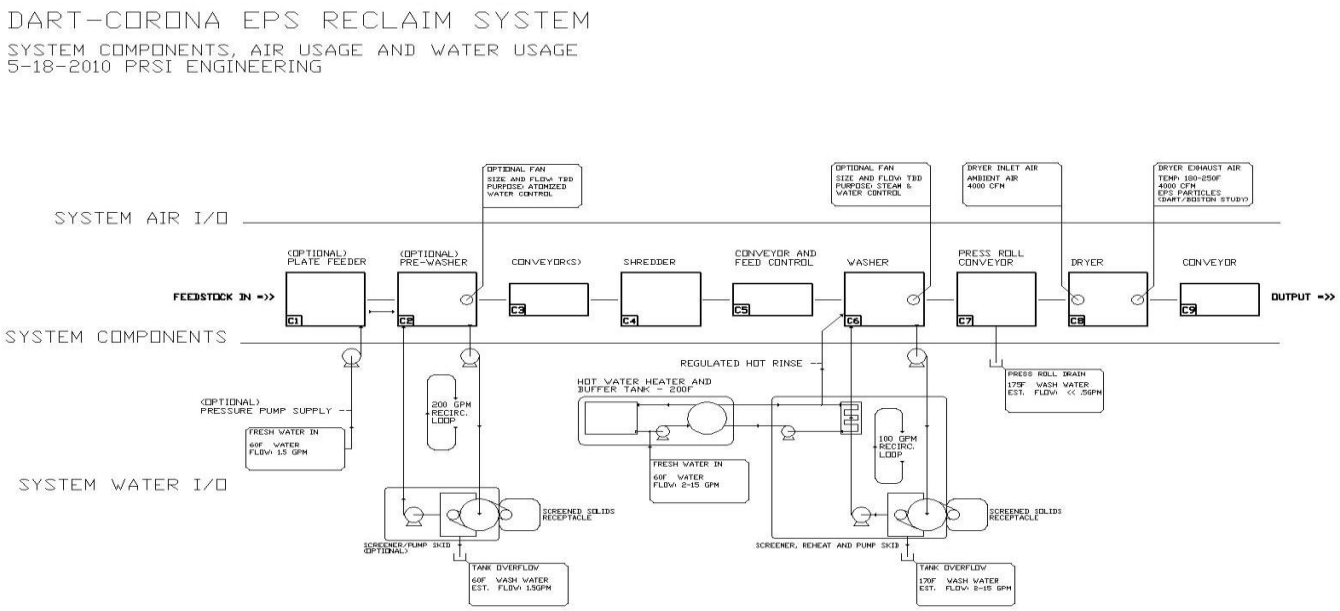


PLATE FEEDER, BELT CONVEYOR D289:

The function of the plate feed (D289) is to help a line worker feed and separate dirty stacks of polystyrene foam plates or trays in a steady, uniform and reliable way. Three belt conveyors, one horizontal lying flat and two sprung, upright and opposing meter the stacked feedstock into the body of the Pre-Washer.

A high pressure water jet (fresh water 1000psi @ 1-2gpm) strips the feedstock from the conveyor bed and propels it into the Pre-Washer. The Plate Feeder reduces the man power required to feed the reclaim system at higher production rates.

PRE-WASHER, D290:

The function of the Pre-Washer (D290) is to wet and tumble the polystyrene foam feedstock and to remove any large contaminates. Items removed include: foil Jell-O, soup and yogurt lids, condiment packages, plastic utensils and large food scrap. The components of the Pre-Washer sub-system include: a pre-washer main body with water collection sump and pump, and a vibratory screener recirculation unit.

The Pre-washer sub-system is initially filled with clean fresh water and it's ready for operation. The Pre-Washer uses a re-circulated wash water solution in a semi-closed loop arrangement. Fresh clean water that is discharged into the Pre-Washer from the Plate Feeder water jet provides the make-up water for the Pre-Washer (D290) at a rate of 1.0-2.0gpm. Wash water discharge takes place at the overflow port on the screener recirculation unit at a rate less than 1.0-2.0gpm. The vibratory screener unit removes any solids 0.018 inch and larger from the process water and deposits the solids in a receptacle for collection and disposal. This is a cold water process.

SHREDDER, D292 (VOC EMISSION POINT):

The function of the shredder (D292) is to reduce the size of the feedstock into a consistency that promotes smooth uniform flow through the remainder of the wash/dry process. The optimal average size of the fractured Polystyrene foam flake is, in most cases, 2.5 square inches and smaller. The shredded feedstock is discharged directly into the Surge Hopper Screw Conveyor in preparation for feeding the 3-Stage Wash Rinse Unit.

Some of the blowing agent contents will release in the shredder when the polystyrene foam cells are fractured. A vacuum blower will drew approximately 381.7 scfm air from the shredder feed throat, which provides a minimum of 200 fpm facial velocity (FV). The 381.7 scfm air will combine with 2,818.3 scfm air from the aging rooms at the 4-stage dryer (D298) and return to the aging rooms. The aging rooms are PTEs and vented to the four boiler/afterburners.

SCREW CONVEYOR, D293:

The function of the Screw Conveyor (D293) is to; capture shredded foam scraps discharged from the shredder, and to convey and regulate the flow of feedstock into the washer and remainder of system. All of the shredded polystyrene foam is discharged into the screw conveyor (D293) and is conveyed into the wash unit. A 2-inch drain coupling is located at the bottom of the surge hopper and can be connected to the system drain plumbing for periodic component cleaning if needed.

3-STAGE WASH RINSE UNIT, D294:

The function of the 3-Stage Wash Rinse Unit (D294) is to wash and rinse the shredded polystyrene foam with a hot water solution. The 170 ^{o}F wash water temperature will dissolve most food waste and kill

bacteria. A detergent and/or deodorant can be added in at this point in the process if needed. The components of the washer sub-system include a 3-stage washer main unit with water collection sump and pump, a vibratory screener-reheat-recirculation unit, and a hot water heating unit (D295) that is rated at 950,000 Btu/hr. The water heater D295 will be a Lochinvar CHN0991, which is a District certified Rule 1146.2 Type 2 unit. The Lochinvar CHN0991 model was certified by the District on June 22, 2010.

The 3-Stage Wash Rinse Unit (D294) is initially filled with clean fresh water and it's ready for operation. The 3-Stage Wash Rinse unit uses 170 deg. F re-circulated wash water solution in a semi-closed loop arrangement. Fresh clean water is continuously introduced into the wash water loop by an adjustable (2-15gpm) rinse flow. The rinse water removes the wash water solution in the 3rd stage of the wash process before the shredded polystyrene foam exits the unit. The hot wash water and hot rinse water collect and mix in a common sump. Hot clean rinse water is the last solution of fresh rinse water into the washer unit, wash water is discharged at the overflow port on the screener recirculation unit at a rate of 2-15gpm. This wash water discharge rate is determined by the amount of rinse water added to the system minus a small amount of water that is discharged with the shredded Polystyrene foam into the Dryer Press Roll Feed Auger. The vibratory screener unit removes solids 0.018-inch and larger from the process wash water and deposits the solids in a receptacle for collection and disposal.

DRYER PRESS ROLL AND FEED AUGER, D296 AND D297:

The function of the Dryer Press Roll and Feed Auger is to isolate the washer from the dryer, squeeze and externalize absorbed water from the shredded polystyrene foam and convey the shredded polystyrene foam into the dryer.

The wet shredded polystyrene foam drops into the press roll section of the Dryer Press Roll Feed Auger. The shredded polystyrene foam quickly passes through the press rolls. Internalized water is squeezed from the polystyrene foam and collected in the unit sump. Most of the externalized water passes through a belly screen and is collected and discharged to drain. The polystyrene foam is captured above the belly screen by a screw auger and conveyed to the 4-Stage Thermal Dryer.

4-STAGE THERMAL DRYER, D298 (VOC EMISSION POINT):

The function of the 4-Stage Thermal Dryer is to remove remaining process water from the polystyrene foam to an acceptable level determined by the polystyrene foam extruder requirements. The dried polystyrene foam flakes are discharged from the thermal dryer into an inclined conveyor.

The dryer is an enclosed system with a 10-hp vacuum blower which withdraws 2,818.3 scfm air from the aging rooms and returns 3,200 scfm air back to the aging rooms. The differences of 381.7 scfm are the make-up air vented from the shredder (D292). The air from the aging rooms will be heated from 170^{o}F to 190^{o}F by steam coils before it enters the dryer. The heated air will dry up the polystyrene foam flakes and take the flakes' VOC emissions to the aging rooms. Dart estimated approximately 2/3 of the trapped blowing agent will be released in the dryer. The aging rooms are PTEs and vented to the four boiler/afterburners.

DRYER DISCHARGE SCREW AUGER, D299:

The function of the Dryer Discharge Screw Auger is to capture the discharge from the thermal dryer and conveyed to the Polystyrene Foam Grinder and Extruder.

POLYSTYRENE FOAM GRINDER AND EXTRUDER, D300:

The function of the Polystyrene Foam Grinder and Extruder is to melt polystyrene foam flakes into form of polystyrene ingot. Dart Containers will sell the reclaimed polystyrene ingot to other facilities to make non food-graded polystyrene products.

The polystyrene foam flake from the Screw Auger drops into the grinder, where its size is further reduced to less than 1.25-inch in diameter. The Extruder auger captures the ground-up polystyrene foam and melts it down by applying mechanical pressure and electrical heat. The hot molten polystyrene materials are casted on the floor and quickly solidified to ingot.

Emissions

VOC emission points and control equipment:

The post-consumer polystyrene foam product recycling system is to reclaim polystyrene materials from the used, dirty polystyrene foam plates, bowls, containers, cups, etc. Post-consumer polystyrene foam products are made with blowing agents such as butane, pentane, etc. A fraction of the blowing agent used in the manufacture of foam is retained in the product, some residing in the cell walls and some entrapped inside the cells. The retained blowing agent in the post-consumer foam products is expected to be released during this polystyrene reclaim process. The emissions will occur in equipment shown below:

Emission Equipment	Emission Type and Path	APC System	
		Emission Collection Method	Control Equipment
D292 - Shredder	Closed foam cells rupture and the entrapped blowing agent is released.	381.7 scfm vent air provide 200 fpm FV at shredder feed inlet	Four boiler/afterburners, D180, D181, D182 and D254
D298 - Dryer	Residual blowing agent is vaporized and released during hot air drying process.	Enclosed system with 2,818.3 scfm recirculating air stream from the aging rooms	Four boiler/afterburners, D180, D181, D182 and D254
D300 – Extruder with a grinder	Residual blowing agent is released when polystyrene foam is ground-up and extruded into molten polystyrene.	No emission collection	No emission control equipment

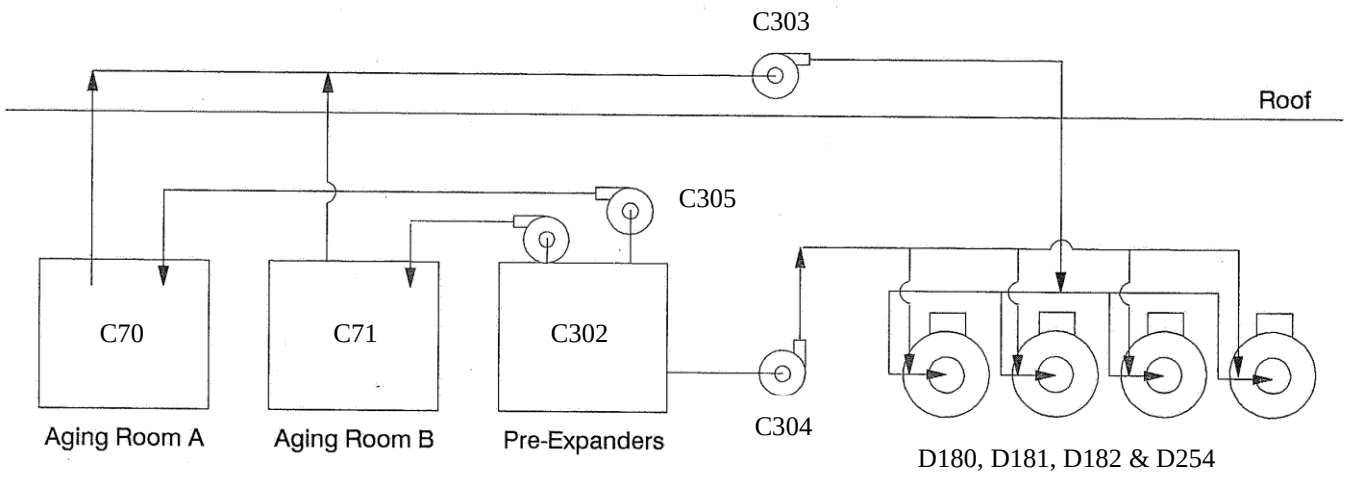
Combustion Emissions:

Emission Equipment	Emission Type and Path	Emission Control Method
Water Heater, D295	Low NOx Burner (District Certified R1146.2 Equipment)	No control method

Appl. No. 514484 – Modification to APC Systems

VOC Emission Collection System:

Dart currently utilizes three permanent total enclosures (PTEs) to capture all of the pentane emissions from the EPS bead handling and pre-expansion equipment for venting to four steam boilers. One enclosure (C302) surrounds all of the pre-expanders and accumulation bags, and the other two enclosures (C70 and C71) surround the aging bags in rooms A and B whose sole purpose is to drive off emissions for capture. Based on a source test performed on April 9, 2008, all three PTEs were determined meeting the 5-point criteria according to EPA Method 204. The existing VOC emission collection system is shown as the following diagram:



Elevation View

Aging Rooms A and B (PTEs C70 and C71) are exhausted to the four boilers' burners for VOC destruction though a use of a 20-hp blower (C303). Aging Rooms A and B do not have any Natural Draft Openings (NDOs); thus, all make-up air is drawing from the Pre-Expander Room (C302). In addition, a 5-hp booster blower (C305) is venting from the Pre-Expander Room (C302) to Aging Room B (C71) to ensure no reversed air flow to the Pre-Expander Room. A 7.5-hp blower (C304) is also utilized to directly vent the pre-expander machines to the four boilers.

The operation requires the pre-puffs to be transferred pneumatically from pre-expander room to the aging rooms, and after the aging period, the pre-puffs have to be transferred from the aging rooms to the cup room, again pneumatically. In order for each PTE room to be maintained at a specific temperature and pressure, all surge bags are fitted with rotary airlocks at their bottoms to separate the airs from the surge bags to the transfer lines. The air blowers, which transfer pre-puffs from pre-expander room to aging rooms, will draw air from the aging rooms and use it to transfer the pre-puffs into the aging rooms. The air blowers, which transfer pre-puffs from aging rooms to the cup room, will draw air from the cup room and use it to transfer the pre-puffs into the cup room. All piping is assembled with gasketed compression couplings at all joints to assure no pentane in lost from the pipes.

Application no. 514484 proposes to vent VOC emissions from the new post-consumer polystyrene foam product recycling system by a use of a 10-hp blower (C306). The new blower (C306) will draw 2,818.3 scfm air from the aging room and additional 381.7 scfm air from the shredder (D292), and use the combined air streams to dry grounded foam scraps and then send air back into the aging rooms. Air from aging room will be at 170 ^{o}F. Air from shredder is ambient air. Both air streams will merge and be heated up to 190 ^{o}F by steam coils prior to being used for drying foam scraps. The shredder will meet with the criteria specified in EPA Method 204. Therefore, the emission collection efficiency at the dryer (D299) and the shredder (D292) are expected to be 100%.

VOC Destruction - Boiler/Afterburners:

The exhaust from three PTEs is routed to any combination of the four boiler combustion chambers. At least one boiler will be in operation as long as the pre-expanders are in operation because the steam is required for the expansion process. The steam boilers #1, #2 and #3 (D180, D181 and D182) are 600-HP Cleaver Brooks Model CB-200-600 natural gas fired boilers each equipped with a 23.1 MMBtu/hr Low-NOx burner and flue-gas recirculation. Steam boiler #4 (D254) is a 700-HP Cleaver Brooks Model CB-700HP natural gas fired boiler equipped with a 29 MMBtu/hr low-NOx burner and flue-gas recirculation.

Dart Containers performed a source test in 2008, and the source test results showed a VOC destruction efficiency of 99.7%. The source test results were summarized in a report dated June 5, 2008 and prepared by Professional Environmental Services, Inc. (PES). The report was deemed to be "Conditionally Acceptable" by STE on February 11, 2009 (Ref: 06060).

EMISSION CALCULATIONS

This facility operates 24 hrs/day, 7 days/wk, and 52 wks/yr.

Appl. No. 511295

Post-consumer Polystyrene Foam Recycling System

Operation Schedule
Polystyrene recycling process rate = 350 lb/hr, or 8,400 lb/day

VOC Emission Calculation

There is no established emission data for this process. In addition, post-consumer polystyrene foam products may be produced by many different manufacturers, which may or may not locate within the District. The types and amount of the blowing agent used and retained during a manufacture process may vary greatly with the different production methods and equipment used, and even possibly the local government regulations depend on where the manufacture facility locates. For the purpose of evaluating the subject recycling system, I will assume all post-consumer foam products are produced by Dart Container Corona facility for the evaluation of permit to construct, and then source test after the equipment are installed and in operation in order to produce the NSR data accurately.

Data

Dart tested the VOC contents of the polystyrene foam materials from their extrusion lines on August 21, 2009 and August 26, 2009. The test results are shown as follows:

Roll #	Charge Rate (lbs C5/ 100 lbs Polystyrene)	End of Extrusion (lbs C5/ 100 lbs Polystyrene)	After 5 days Storage/Aging (lbs C5/ 100 lbs Polystyrene)	Final Product (lbs C5/ 100 lbs Polystyrene)
1	4.11	3.20	3.16	3.20
2	4.10	3.09	2.93	3.06
3	3.55	2.84	2.83	2.52
4	3.68	2.56	2.63	2.72
5	3.52	2.82	2.75	2.35
Average	3.79	2.90	2.86	2.77

Assumption

- All VOC emissions occur at the shredder and dryer
- 100% capture efficiency at the shredder and dryer
- 95% destruction efficiency of the boiler/afterburner

R1 = (350 lbs/hr) (2.77%) = 9.695 lbs/hr, or 232.68 lbs/day
R2 = (9.695 lbs/hr) (100% capture eff.) (1 – 95% destruction eff.)]
= 0.48 lbs/hr, or 11.63 lbs/day

VOC Emission Factor

(0.48 lbs/hr) / [(350 lbs/hr) (1 – 2.77%)] = 0.00141 lbs/lb polystyrene ingot produced

Condition No. F16.1 will be revised to reflect new emission factor!

Combustion Emission Calculation - Water Heater (D295)

Emission Factors

Emission **ROG, SOX, PM10** (lb/MMBtu) = $EF_{ROG,SOX,PM10}\left(\frac{lb}{MMscf}\right) x \frac{1MMscf}{1050MMBtu}$

Emission Factor Summary - Natural Gas

Pollutant	Emission Factor (RECLAIM) lb/mmscf	Emission Factor (AQMD Default) lb/mmscf	Emission Factor (for this report) lb/MMBtu
VOC	-	7	0.00667
SOx	-	0.6	0.000571
PM10	-	7.5	0.00714
NOx	38.46	-	0.03663
CO	-	35	0.03333

Note:

- RECLAIM factor was taken from Rule 2002 (Amended November 5, 2010), Table 1 - RECLAIM NOx Emission Factors.
- AQMD Default emission factors were taken from "General Instruction Book for the AQMD 2007-2008 Annual Emission Reporting Program", Appendix A- Table 1.

Water heater burner rating: 0.95 MMBTU/hr

The calculated emission results are indicated below:

Combustion Emission Summary

Pollutant	Hourly (lbs/hr)	Daily (lbs/day)	Annually (lbs/yr)	30 day ave. (lbs/day)	30 day NSR (lbs/day)
VOC	0.006	0.15	55.4	0.15	0
SOx	0.001	0.01	4.7	0.01	0
PM10	0.007	0.16	59.3	0.16	0
NOx	0.035	0.84	304.0	0.84	1
CO	0.032	0.76	276.6	0.76	1

HEALTH RISK ASSESSMENT- TIER I ANALYSIS:

Excel program results show Cancer/Chronic ASI is less than 1, Tier II analysis is not required.

Emission Summary

A/N: 512521		Hourly (lbs/hr)	Daily (lbs/day)	Annually (lbs/yr)	30 day ave. (lbs/day)	30 day NSR (lbs/day)
R1	VOC	9.70	232.83	84,750.9	232.83	233
R2	VOC	0.49	11.79	4,290.1	11.79	12
R1=R2	SOx	0.001	0.01	4.7	0.01	0
R1=R2	PM10	0.007	0.16	59.3	0.16	0
R1=R2	NOx	0.035	0.84	304.0	0.84	1
R1=R2	CO	0.032	0.76	276.6	0.76	1

Hourly (lbs/hr) = (process emissions, lbs/hr) + (combustion emissions, lbs/hr)
Daily (lbs/day) = (hourly, lbs/hr) (24 hr/day)
Annually (lbs/yr) = (daily, lbs/day) (7 days/wk) (52 wks/yr)
30day ave. (lbs/day) = (annually, lbs/yr) / (360 days/yr)

Appl. No. 514484 – Modification to APC Systems

VOC Emission Collection System

PTE – Pre-Expander Room (C302)

Data:
Total NDO Surface Area: 2.4 ft^2 (Source Test on April 9, 2008)
Pre-Modification Exit Air Flow: 3,352 scfm
Post-Modification Exit Air Flow: 2,920 scfm

Post-Modification Facial Velocity (FV):

FV = (2,920 ft^3/min) / (2.4 ft^2) = 1,217 ft/min → Still satisfied with EPA Method 204 requirement

Note: above calculation only apply at times when the new post-consumer polystyrene foam recycling system is in operation. When the foam recycling system is not in operation, the air re-circulation blower C306 will also not be in operation and the air circulation loop will be shut off. In that case, the exit air flow and FV will remain to be the same with pre-modification scenario.

PTE – Aging Rooms (C70 and C71)

These two PTEs are fully enclosed and no NDOs. In addition, the proposed modification will not cause any changes to the air flows in and out of these two PTEs. The additional air flow in from the shredder (D292) is offset by the reduced air in from the pre-expander room (C302).

Shredder (D292)

Data:

Total NDO Equivalent Diameter: 19.2 inches (email from Dart Containers on December 20, 2010)
VOC emission point from NDO: 90.6 inches (email from Dart Containers on December 20, 2010)
Total NDO Surface Area: $A = \pi r^2 = 2.01\ \text{ft}^2$
Exit Air Flow: 381.7 scfm

Assumption:

The NDO is the belt conveyor opening, which is always 30% filled with post-consumer foam products.

FV = (381.7 ft^3/min) / (2.01 ft^2) / (1 – 30%) = 271.3 ft/min→ Satisfied with EPA Method 204 requirement

(90.6 inches) / (19.2 inches) = 4.72 > 4 → Satisfied with EPA Method 204 requirement

VOC Destruction System – Four Boiler/Afterburners

The proposed modification may impact the boiler/afterburner operations in the ways described as follows:

1) Additional moisture content to be picked up from wet EPS scraps in the dryer (D298) may cause undesirable results ranging from flame popping to complete outage of the burner, if the process air stream is used as primary combustion air.
2) Additional moisture content to be picked up from wet EPS scraps in the dryer (D298) will cause more heat be wasted from boiler/afterburner exhaust. Boiler performance may have to suffer.
3) Additional VOC content to be picked up from the shredder (D292) and the dryer (D298) may raise the VOC content level to above LEL, which may cause flashbacks and/or firebox explosions.

Impact on burner flame

Dart Containers tested the wet EPS scraps in a dryer in their Boston facility. The results showed a 0.3% water loss through the dryer, which is equivalent to 1.05 lb/hr of the moisture content to be picked up in the dryer. This quantity of the moisture content will not have any impact on the boiler operation.

Data:

Pre-Modification Moisture Content: 1.5% (Source Test on April 9, 2008)
Additional Moisture Content: 1.05 lb/hr (email from Dart Containers on November 19, 2010)
Air Flow at Boiler Inlet: 3,302 scfm

1.05 lbs	lb-mole	379 scf	min	hr	100
hr	18 lb	lb-mole	3,302 scf	60 min	1.5

= 1.06% increases **Acceptable!**

Additional heat wasted due to additional moisture content

Data:

Additional Moisture Content:	1.05 lb/hr (email from Dart Containers on November 19, 2010)
Boiler Inlet Temperature:	170^{o}F
Boiler Exhaust Temperature:	500^{o}F (Assumption)
Enthalpy of Moisture at 170^{o}F:	2.34 Btu/scf, or 49.27 Btu/lb
Enthalpy of Moisture at 500^{o}F:	9.52 Btu/scf, or 200.4 Btu/lb
Boiler Burner Rating:	23.1 MMBtu/hr (Boilers #1, #2 or #3)

Additional Heat Required: [(200.4 Btu/lb) – (49.27 Btu/lb)] (1.05 lb/hr) = 158.7 Btu/hr

(158.7 Btu/hr) / (23,100,000 Btu/hr) (100%) = 0.000687%

The boiler needs to increase 0.000687% of the load to handle additional moisture from the dryer. This will not present a problem for the boiler operations.

Additional VOC content to the boiler combustion chamber

Data:

n-Pentane or iso-Pentane LEL:	1.4%
Butane LEL:	1.8%
Pre-Modification VOC Content (Max.):	14,110 ppmv C_1 (Source Test on April 9, 2008)
Air Flow at Boiler Inlet:	3,302 scfm

Assumption:
All blowing agent content in the post-consumer foam products is pentane because pentane has lower level of LEL.

Pre-Modification Pentane Content = (14,110 ppmv C_1) / 5 = 2,822 ppmv C_5 = 2.822×10^{-3} v/v C_5

Additional Pentane Collection = (350 lbs/hr) (3.37% - 0.43%) (100% capture eff.) = 10.29 lb/hr

Additional Pentane Content (v/v fraction)

pentane:

$$\frac{10.29\ \text{lbs}}{\text{hr}} \left| \frac{\text{lb-mole}}{72.15\ \text{lb}} \right| \frac{379\ \text{scf}}{\text{lb-mole}} \left| \frac{\text{min}}{3{,}302\ \text{scf}} \right| \frac{\text{hr}}{60\ \text{min}} = 2.73\times10^{-4}\ \text{v/v}\ C_5$$

(2.822×10^{-3} v/v C_5 + 2.73×10^{-4} v/v C_5) / (1.4% LEL) = 22% LEL → Acceptable

Boiler/Afterburner Combustion Emissions

There will be no changes to the combustion emissions from the boiler. The following NSR data are obtained from P/O: F3771 (A/N 316734).

A/N 514484 - D181		Hourly (lbs/hr)	Daily (lbs/day)	Annually (lbs/yr)	30 day ave. (lbs/day)	30day NSR (lbs/day)
R1=R2	VOC	0.06	1.48	538.72	1.48	1
R1=R2	SOx	0.01	0.32	116.48	0.32	0
R1=R2	PM10	0.11	2.64	960.96	2.64	3
R1=R2	NOx	0.84	20.07	7,305.48	20.07	20
R1=R2	CO	0.44	10.56	3,843.84	10.56	11

Daily (lbs/day) = (Hourly, lbs/hr) (24 hrs/day)
Annually (lbs/yr) = (daily lbs/day) (7 days/wk) (52 wks/yr)
30day ave. (lbs/day) = Daily (lbs/day)

Facility-wide VOC Emission Summary

The facility has a VOC emission cap of 3,281 lb/day as required by condition no. F2.1; thus it is important to summarize VOC emission potentials for all equipment. The following table summarizes the current VOC emissions:

Equipment Description		Device ID	Appl. No.	R1 (lbs/hr)	R2 (lbs/hr)
DI Foam Manufacturing Operation					
DI foam extrusion, storage and thermo-forming	Line 1	D207, D275, D204, D205	347409	35.52	12.60
	Line 2	D206, D204, D205	347407	35.50	12.58
	Line 3	D203, D204, D205	347406	35.50	12.58
	Line 4	D211, D204, D205	347415	35.50	12.58
DI foam reclaim process – grinding, fluff storage, extrusion/re-pelletizing and pellet storage	Line 1	D214, D215, D218, D213, D216, D217, D219	347384	0.00	0.00
	Line 2	D214, D215, D218, D220, D221, D217, D219	347385	0.00	0.00
RTO Combustion Emissions		C224	511295	0.05	0.05
Pentane Storage Tanks		D251	347390	0.53	0.01
		D252	347419	0.53	0.01
EPS Foam Cup Manufacturing Operation					
Polystyrene Foam Cup Manufacturing	Line 1	Process 1, Systems 1 & 2	316738	165.31	23.12
	Line 2	Process 1, Systems 2 & 3	280815	165.31	23.12
Printing Process		Exempt Equipment, E199*	N/A	0.32	0.32
Boiler/afterburner (23.104 MMBtu/hr)		D180	316735	0.06	0.06
Boiler/afterburner (23.104 MMBtu/hr)		D181	316734	0.06	0.06
Boiler/afterburner (23.104 MMBtu/hr)		D182	362217	0.06	0.06
Boiler No. 4 (29 MMBtu/hr), Boiler/afterburner		D254	389113	0.15	0.15

OPS Manufacturing Operation				
OPS Processing Line 1	D226, D227, D229	511293	0.22	0.22
OPS and HIPS Reclaim Grinding, Conveying, and Storage	D236, D237	347396	0.00	0.00
Polystyrene Reclaim Extrusion Line	D219, D238	347399	0.07	0.07
HIPS Manufacturing Operation				
HIPS Extrusion Line #1	D177, D178, D280, D281, D282	234905	0.04	0.04
HIPS Extrusion Line #2	D193, D194, D280, D281, D282	316737	0.07	0.07
Emergency ICE				
Emergency ICE	D253	448879	0.04	0.04
Post-consumer Polystyrene Foam Recycling System				
Post-consumer Polystyrene Foam Recycling System	D292, D295, D296, D299, D301	512521	9.70	0.49
		Total (lb/hr):	**484.54**	**98.23**
		Total (lb/day):	**11,629.1**	**2,357.40**

* Based on the Engineer Evaluation for A/N: 406665

VOC emissions 2,357.40 lb/day is within the facility limit of 3,281 lb/day!

RULES AND REGULATIONS EVALUATION

Rule 212: Standards for Approving Permits

(c)(1) – There are no other K-12 schools located within 1,000 feet of Dart Containers facility. A Public Notice is not required.

(c)(2) – Although the VOC emission increase is 11.79 lbs/day for the new post-consumer polystyrene foam recycling system, the facility is still under its VOC emission cap (3,281 lbs/day) specified in condition no. F2.1. There will be no other criteria pollutants exceed the thresholds, thus, a Public Notice is not required.

(c)(3) – The TAC's potential emission increases for this project which will not cause an individual cancer risk greater than, or equal to, one (1) in a million. A Public Notice is not required.

Emission increases:

Application No.	VOC (lb/day)	PM10 (lb/day)	NOX (lb/day)	CO (lb/day)	SOX (lb/day)
512521 – Post-Consumer Polystyrene Foam Recycling System	**+11.79**	**+0.16**	**+0.84**	**+0.76**	**+0.01**
Total PTE Increases	**+11.79**	**+0.16**	**+0.84**	**+0.76**	**+0.01**

Section (g)

Item	Lb/dy daily maximum	Allow limit-lb/dy	Trigger Public notice
NOx	+0.84	40	No
ROG	+11.79	30	No
CO	+0.76	220	No
PM10	+0.16	30	No
SOx	+0.01	60	No

Rule 401: **Visible Emissions** – Compliance is expected from well maintained and properly operated equipment.

Rule 402: **Public Nuisance** – The potential for public nuisance from the operation of this equipment is minimal. The facility is located in a commercial/industrial area.

Rule 405: **Solid Particulate Matter – Weight**

SCREW CONVEYORS D293 AND D299

Compliance with this rule is expected because polystyrene foam scraps will be wet and the smaller particles will be washed away in the cleaner D294.

Rule 407: **Liquid and Gaseous Air Contaminants:** The rule allows a CO concentration of 2,000ppm in the gas discharge to the atmosphere.

WATER HEATER (D295)

The water heater D295 is a Lochinvar model CHN0991 rated at 950,000 Btu/hr. Lochinvar model CHN0991 is a District certified Rule 1146.2 Type 2 unit. Rule 1146.2 only allows a CO concentration of 400ppm in the gas discharge to the atmosphere. Thus, compliance Rule 407 is achieved.

Rule 1146.2: **Emissions of Oxides of Nitrogen from Large Water Heaters and Small Boilers and Process Heaters**

CO EMISSIONS

(c)(1) requires the new water heater to have CO emissions with a concentration of 400 ppmv (at 3% O_2, dry) or less. The water heater D295 is a Lochinvar model CHN0991 rated at 950,000 Btu/hr. Lochinvar model CHN0991 is a District certified Rule 1146.2 Type 2 unit. Thus, compliance with this rule is achieved.

NOX EMISSIONS

Dart Container is operating under the RECLAIM program, the NOx emission limits under sections (c)(1), (c)(2), (c)(3), (c)(4) and (c)(5) of this rule are exempt per section (h)(3).

(c)(7) and (c)(11) require the new water heater to have NOx emissions with a concentration of 20 ppmv (at 3% O_2, dry) or less. The water heater D295 is a District certified Rule 1146.2 Type 2 unit. Thus, compliance with this rule is achieved.

REG XIII: Dart Container is operating under the RECLAIM program, the NOx emissions are not subject to Regulation XIII per Rule 1301(b)(1).

New Source Review – the calculated uncontrolled VOC emissions are 232.83 lbs/day for the new post-consumer polystyrene foam recycling system; thus, BACT is required.

The VOC emissions from the new post-consumer polystyrene foam recycling system will be vented to four existing boiler/afterburners. The most recent source test performed in 2008 has shown a VOC destruction efficiency of 99.7%. Compliance is achieved.

Offset – Offsets are not required for this facility since the criteria contaminant emissions will not exceed the limits in table A (rule 1304(d))

	VOC (lb/day)	PM10 (lb/day)	NOX (lb/day)	CO (lb/day)	SOX (lb/day)
Current NSR (PTE)	**574**	**23**	**75**	**59**	**2**
512521 – Post-Consumer Polystyrene Foam Recycling System	**+11.79**	**+0.16**	**+0.84**	**+0.76**	**+0.01**
Total PTE	**585.79**	**23.16**	**75.84**	**59.76**	**2.01**
Threshold limit	**22**	**22**	**22**	**159**	**22**
Offset required	**N/A**	**0**	**N/A**	**0**	**0**

The VOC offset threshold limit does not apply because Dart Container is under a facility-wide VOC limit of 3,281 lbs/day as specified in condition no. F2.1.

Modeling: The CO and PM10 emissions from the water heater D295 are below the rule limits (specified in the table A1). Therefore, no further screening analysis is required.

	Allowed lb/hr	Actual lb/hr	Compliance
NOx	0.2	0.035	N/A - RECLAIM
CO	11	0.032	Yes
PM10	1.2	0.007	Yes

Rule 1401: Compliance is expected. Excel program results (attached to this report) show Cancer/Chronic ASI is less than one (1) and Acute ASI is less than one (1) in Tier I Screening Analysis.

Rule 2005: **New Source Review for RECLAIM**

WATER HEATER (D295)

(b)(1) – The NOx emissions from this water heater are expected to be less than one (1) pound per day. BACT is not required.

(b)(2) – The allocation for Dart Container for period of 07/2011 – 06/2012 is 7,031 pounds. The calculated annual NOx emissions for the new water heater are 304 pounds.

Thus, compliance with this rule is achieved.

Rule 2012: Requirements for Monitoring, Reporting, and Recordkeeping for Oxides of Nitrogen (NOx) Emissions

WATER HEATER (D295)

Water Heater D95 is a NOx Process Unit. Chapter 4 A-1 requires the quarterly mass emissions of this unit to be reported using a emission factor found in Table 1 of Rule 2002 - Allocations for Oxides of Nitrogen (NO_x) and Sulfur (SO_x). Table 1 of Rule 2002 (Amended November 5, 2010) specified an emission factor of 38.460 lbs/mmcf for Boilers, Heaters, Steam Gens. The emission factor of 38.460 lbs/mmcf will be listed in the facility permit.

Reg XXX: Title V Permit

Dart Container Corp of California (Facility ID: 3721) has an active Title V permit. Based on the above evaluation, no VOC emission increase from this facility is expected (the VOC emissions from new post-consumer polystyrene foam recycling system are still under the facility VOC emission cap). Minor increases of combustion emissions associated with a new water heater are expected. Therefore, application no. 512522 is considered "de minimis significant permit revision" of Title V Facility Permit and it is subject to a 45-day EPA review prior to final revision of the Title V Facility Permit (Application No. 512522).

CONCLUSION AND RECOMMENDATIONS

Based on this evaluation, it is expected that the subject equipment will be operated in compliance with all applicable District Rules and Regulations. The permits to construct are recommended to be issued.